

### **REMARKS**

In response to the Final Office Action mailed June 8, 2009, as a supplement to the Response filed September 8, 2010, and pursuant to the Request for Continued Examination (RCE) filed herewith, Applicants respectfully request reconsideration. Claims 1, 3-8, 10-20, 23-25 and 28 were previously pending for examination. Claims 1, 3-8, 10-17, 19, and 25 have been amended herein. No claims have been added or canceled. As a result, claims 1, 3-8, 10-20, 23-25 and 28 are pending for examination with claims 1, 16, 17, 18, 19, 20, 23 and 25 being independent claims. No new matter has been added.

I. **Allowable Subject Matter**

Applicants thank the Examiner for the indication of allowable subject matter in claims 23 and 24.

II. **Summaries of Telephone Interviews with the Examiner**

Applicants' representatives appreciate the courtesies extended by Examiner Wu in granting and conducting two telephone interviews on July 8, 2010 and September 28, 2010. Applicants were represented at the interview on July 8, 2010, by Joseph Teja, Jr. (Reg. No. 45,157). The substance of this first telephone interview was summarized in the Response submitted on September 8, 2010. Patent Agent Andrew Tibbetts (Reg. No. 65,139) represented Applicants at the interview conducted on September 28, 2010. The substance of this second telephone interview is summarized herein.

During the second telephone interview, the Examiner stated that he believed that the claims were not patentable, even if the Chow reference (U.S. Patent No. 6,771,966) did not disclose all limitations of the claims. The Examiner stated that he believed that he could find other references that would meet the limitations of the claims. Applicants' representatives disagreed and requested that, if the Examiner believes he is correct, the Examiner provide citations to references that disclose each limitation of claim 1.

Applicants' representative also discussed with the Examiner the system described in Chow. Applicants' representatives pointed out that, in the Chow reference, all the radio sites (which the Examiner contends are "nodes") are intended to be connected in the final network. Applicants'

representatives also pointed out that Chow does not discuss adding or removing radio sites from the set of radio sites to be included in the network, but instead describes adding directed, point-to-point communication links between the radio sites in a way that accounts for the possibility of adding radio sites in the future (Chow, col. 5, lines 37-49; col. 8, lines 48-65; col. 9, lines 25-31).

Applicants' representatives discussed that Chow does not characterize its "links" as broadcast points to which users could connect, but rather describes the links as focused and directed RF signals that are only intended to communicate signals directly between radio sites (FIG 1; col. 8, line 48, to col. 9, line 15).

Also discussed was that Chow appears to describe each radio site as static in location, as Chow describes radio sites as associated with "an office building" (Col. 2, line 55; col. 11, line 25) and describes techniques for planning for future locations of radio sites that assume current radio sites will stay in the same location (Col. 11, lines 37-42).

The Examiner stated that he agreed that Chow did not describe in detail a process for identifying nodes that are to be included in a network and stated that he believed Chow could use any known processes for such identifying. The Examiner also appeared to agree that, as Chow only describes operations carried out after the nodes to be included in the network are identified, Chow does not disclose limitations of claim 1 regarding determining placement locations of access points. The Examiner cited a section of Chow that describes that Chow's process is carried out "once the nodes and radio sites have been identified" (Col. 9, lines 47-50) and stated that he believed that this passage implied that Chow carried out some process for identifying which radio sites were to be included in the network, and that such a process could meet the limitations of claim 1. The Examiner stated again that he believed he could find a reference that would meet these limitations.

Further details of various topics discussed during the telephone interview with the Examiner are included in the remarks below.

### III. Claim Rejections under 35 U.S.C. §101

Claims 25 and 28 were rejected under 35 U.S.C. §101 as allegedly being directed to non-statutory subject matter.

These rejections were discussed in the Response filed September 8, 2010. For efficiency, those arguments will not be duplicated herein. Those arguments, including the citations to the correspondence with the Office of Patent Legal Administration regarding these rejections under §101, are incorporated herein by reference in their entirety.

#### IV. Claim Rejections under 35 U.S.C. §103

Independent claims 1 and 16 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 6,771,966 (“Chow”) in view of U.S. Patent App. Publication No. 2002/0101822 (“Ayyagari”). Independent claims 17, 18, 19, and 20 were rejected under 35 U.S.C. §103(a) as allegedly being obvious over Chow in view of Ayyagari and U.S. Patent No. 6,405,213 (“Layson”).

Applicants respectfully disagree that these claims are obvious over the cited references at least because each claim recites limitations that would not have been met by systems that would have resulted from the proposed modifications.

The Office Action Summary indicates that claim 25 is rejected. However, the Office Action never addresses claim 25 or indicates on what grounds claim 25 is rejected. Claim 25 is therefore not addressed in detail below. However, claim 25 distinguishes over the cited references at least for reasons that should be appreciated from the discussion below.

##### A. Discussion of Illustrative Embodiments From the Specification

Some embodiments discussed in the Specification include techniques for determining where to place access points in a wireless mesh network (Published App. 2005/0180329, ¶0007). In some such wireless mesh networks, a wireless network can be extended over a region (e.g., a neighborhood) by chaining together wireless access points (¶0003; FIG. 2).

When implementing mesh networks, there is significant cost in installing and maintaining access points (¶0003). As such, reducing the number of access points can be advantageous (¶0003). Some techniques exist for determining optimum locations to place facilities (¶0005). These techniques are not useful for access points, however, as these techniques do not account for service

demands of users (§0005). For example, these techniques do not account for traffic demands, link capacity, interference between access points, and fault tolerance (§0006).

In some embodiments, a technique is carried out for determining placements of access points in a network that accounts for service demands (§0007). In these techniques, potential nodes to be added to the network are iteratively tested to determine which node, if node added to the network, would increase the demands satisfied by the network the most (§0044). At each step, a node having the highest potential to increase the amount of satisfied demand is added (§0044). This process continues over multiple steps until all demand has been satisfied (§0044).

Once the potential nodes have been considered and the nodes to be included in the network finalized, the nodes that are to be included in the network are deployed and activated (§§0024-0026). Users can then use the network and the access points to send and receive data.

The foregoing discussion is provided solely for the convenience of the Examiner in preparing to review the arguments below and is not intended to characterize any claim in any way. Each of the independent claims may not be limited in the manner described in the discussion above. In this respect, Applicants do not rely on the overview provided above to distinguish any of the claims over the art of record. The Examiner is requested not to rely upon the discussion for determining whether each of the claims distinguishes over the art of record, but to do so based solely on the language of the claims themselves and the arguments presented below.

#### B. Chow

Chow describes techniques for determining an efficient connection of radio sites/nodes in a network (Chow, col. 3, lines 20-26). Chow explicitly describes that its techniques are directed to “point-to-point microwave systems” and similar “narrow beam transmission” where the transmitters and receivers are “all in fixed positions” (Col. 2, lines 32-40). Chow contrasts these discrete transmitter/receiver systems with “cellular” systems with access points that “blanket” an area with transmitted signals (Col. 2, lines 40-43).

Chow describes that its techniques are directed to discrete systems and not cellular-type access point systems and, in particular, to problems that arise due to interference between signals transmitted between transmitter/receiver pairs (Col. 2, lines 45-59). Chow discusses that such direct,

point-to-point transmissions can interfere with one another when paths cross (Col. 2, lines 45-59). Accordingly, when networks are to be expanded, existing links could prevent the addition of new links, as the existing links would cross paths with the new links and interfere with the new links (Col. 2, lines 45-59).

Chow describes that, in its system, when first determining transmitter/receiver pairs between which to establish links, potential locations of new links can be considered by identifying future node sites (Col. 11, lines 12-31). Future node sites could be, for example, large buildings that are not currently node sites (Col. 11, line 25).

Chow discusses that, after both the nodes to be currently included in a network and nodes that may be included in the future are identified, its techniques can be useful to identify pairs of transmitters/receives between which to create direct, point-to-point links in a way that accounts for future links between the future node sites (Col. 8, lines 47-65; col. 9, lines 47-50).

C. Independent Claim 1 Patentably Distinguishes Over The Proposed Modification of Chow Based On Ayyagari

In rejecting claim 1, the Office Action alleges that Chow meets many of the limitations of claim 1 but does not describe a contention-based MAC protocol (Office Action, pages 4-6). The Office Action alleges instead that Ayyagari discloses such a contention-based MAC protocol, that one of ordinary skill in the art would have modified Chow based on Ayyagari, and that a system that would have resulted from the proposed modification of Chow would have met all limitations of claim 1 (Office Action, pages 6-7).

Without conceding that one of ordinary skill would have modified Chow based on Ayyagari, Applicants respectfully disagree that the system that would have resulted from the proposed modification would have met all limitations of claim 1. For example, the resulting system would not have met the limitations of claim 1 regarding “iterating through each access point in the set of potential access points to be opened” and, in each iteration, “selecting a test access point, from the set of potential access points to be opened, to be added to a set of currently open access points” and “computing node demands satisfied if the test access point is added to the set of currently open access points.”

- i. *Chow's passage regarding "identifying" nodes to be included in a network does not teach or suggest the highlighted limitations of claim 1.*

In the Office Action and in the interview on September 28, 2010, the Examiner cited to a passage of Chow that generally describes "identifying" nodes to be included in a network (Chow, col. 9, lines 47-50).

Chow does not describe any particular process for such "identifying" or describe in any way how this "identifying" could be carried out. As Chow does not disclose any particular acts with this vague reference, Chow does not explicitly disclose the highlighted limitations of claim 1.

If the Examiner believes that Chow's system would *inherently* carry out the highlighted limitations of claim 1 during the "identifying," the Examiner is requested to provide documentary evidence demonstrating that the acts recited by claim 1 are "necessarily present" in Chow's system (MPEP §2131.01(III)).

- ii. *Chow's nodes/radio sites do not meet the limitations of claim 1 regarding "access points."*

Notably, as discussed above, Chow describes that its techniques are not directed to "cellular" type systems that include access points that "blanket" an area with signals (Chow, col. 2, lines 30-45). Rather, Chow describes directed, point-to-point systems (Chow, col. 2, lines 30-59). As Chow does not describe any operations involving access points, Chow cannot describe "iterating through each access point in the set of potential access points to be opened," as recited by claim 1.

Though, even if Chow's nodes could be considered "access points," Chow would not meet these limitations of claim 1. As the Examiner pointed out in the telephone interview on September 28, 2010, Chow's techniques are useful after all of the nodes to be included in the network have been identified (Chow, col. 9, lines 47-50). Chow does not describe techniques for determining which nodes to include in a network, but rather techniques for interconnecting the nodes that have been previously identified as nodes to be included. As a result, all of the nodes that Chow considers for the establishment of links are nodes that will be included in the network; none of the nodes are "potential" nodes or "potential access points." It is true that Chow describes that, when determining whether to establish a link between two particular nodes, future nodes may be considered. However, these future nodes cannot be the "potential access points" of claim 1. Chow's technique does not

“iterate” through these future nodes, as recited by claim 1. Further, Chow does not disclose “selecting” a future node and “computing node demands satisfied” if the future node were added to the network, as recited by claim 1. Therefore, neither of Chow’s current nodes and future nodes can be considered to be the “potential access points” recited by claim 1.

*iii. Chow’s techniques for evaluating links do not meet the limitations of claim 1.*

In the interview on September 28, 2010, the Examiner indicated that he believed that the links between Chow’s radio sites could be considered to be access points. However, Chow does not describe that its links are anything of the sort. Instead, Chow merely describes that the links are directional *signals* conveying information between transmitter/receiver pairs (Chow, col. 8, lines 47-65). A signal is not an “access point.” Thus, even though Chow describes considering potential links and adding links into the network, none of these operations have anything to do with iterating through “potential access points” or “computing node demands satisfied” if an access point were to be added to the network.

*iv. Conclusion re: Claim 1.*

Chow therefore does not disclose the limitations of claim 1 regarding “iterating through each access point in the set of potential access points to be opened” and, in each iteration, “selecting a test access point, from the set of potential access points to be opened, to be added to a set of currently open access points” and “computing node demands satisfied if the test access point is added to the set of currently open access points.”

The Office Action does not allege that Ayyagari meets these limitations of claim 1. Accordingly, even if Chow were modified based on Ayyagari in the manner proposed by the Office Action, no resulting system would have met these limitations of claim 1.

For at least these reasons, claim 1 patentably distinguishes over the proposed modification of Chow and Ayyagari and should be allowed. Claims 3-8 and 10-15 depend from claim 1 and should be allowed for at least the same reasons. Withdrawal of the rejections of claims 1, 3-8, and 10-15 under §103 is respectfully requested.

D. Independent Claim 16 Patentably Distinguishes Over The Proposed Modification Of Chow Based On Ayyagari

Claim 16 recites limitations that would not have been met by a system that would have resulted from the proposed modification of Chow based on Ayyagari. For reasons that should be appreciated from the foregoing, no resulting system would have met the limitations of claim 16 regarding “selecting an access point, from the set of potential access points to be opened, to be added to a set of currently open access points” and “computing node demands satisfied if the selected access point is added to the set of currently open access points.”

For at least these reasons, claim 16 patentably distinguishes over the proposed modification and should be allowed. Withdrawal of the rejection of claim 16 under §103 is respectfully requested.

E. Independent Claims 17, 18, 19, and 20 Patentably Distinguish Over The Proposed Modification Of Chow Based On Ayyagari and Layson

Each of the other independent claims recites limitations that distinguish over the proposed modification of Chow based on Ayyagari and Layson. For reasons that should be appreciated from the foregoing, no system that would have resulted from the proposed modification of Chow bases on Ayyagari would have met the limitations regarding:

- “iterating through the set of potential access points to be opened” and “computing a total of node demands satisfied by adding an access point from the set of potential access points to be opened, to a set of currently open access points,” as recited by claim 17;

- “iterating through the set of potential first nodes to be opened” and “computing node demands satisfied if the test first node is added to a set of currently open first nodes,” as recited by claim 18;

- “iterating through the set of potential access points to be opened” and “computing node demands satisfied by adding the test access point to a set of currently open access points,” as recited by claim 19; and

- “iterating through the set of potential Internet access nodes to be opened” and “selecting an access point, from the set of potential Internet access nodes to be opened, that satisfies a largest user node demand,” as recited by claim 20.



The Office Action does not allege that Layson meets these limitations of the claims. Accordingly, even if Chow were modified based on Layson in the manner proposed in the Office Action, no resulting system would have met these limitations of the claims.

For at least these reasons, independent claims 17, 18, 19, and 20 patentably distinguish over the proposed modification and should be allowed. Claim 28 depends from claim 20 and should be allowed for at least the same reasons. Withdrawal of the rejections of claims 17, 18, 19, 20, and 28 under §103 is respectfully requested.

V. General Comments on Dependent Claims

As each of the dependent claims depends from a base claim that is believed to be in condition for allowance, Applicants believe that arguing the allowability of each of the dependent claims individually is unnecessary at this time. However, Applicants do not necessarily concur with the interpretation of the dependent claims as set forth in the Office Action, nor do the Applicants concur that the basis for the rejection of any of the dependent claims is proper. Therefore, Applicants reserve the right to specifically address the patentability of the dependent claims in the future.

**CONCLUSION**

In view of the above amendment, Applicants believe the pending application is in condition for allowance. A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, the Director is hereby authorized to charge any deficiency or credit any overpayment in the fees filed, asserted to be filed, or which should have been filed herewith to our Deposit Account No. 23/2825, under Docket No. M1103.70167US00 from which the undersigned is authorized to draw.

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Respectfully submitted,

By



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